PGTA Project Proposal

Discipline:	Sports Biomechanics and Motor Control
Project Title:	The effect of slopes on technique and performance outcomes in golf
Supervisory Team:	Dr Michael Hiley Dr Glen Blenkinsop
Summary of proposed project:	Aim: To determine the effect of task constraints on technique and performance outcomes in golf. Summary: Golf is a sport that requires a moderate level of exertion with a high degree of precision sustained over several hours. Since golf demands consistent performance understanding how various task constraints affect technique and shot outcomes is of interest to players and coaches alike. Golf courses are designed to incorporate the natural features of the surrounding area, such as using slopes to make the course more challenging. Previous golf studies typically take place in controlled laboratories with shots taken into a net from a flat surface whilst kinematic and kinetic data are collected. More recently studies have included uphill/downhill and ball above/below feet slopes. However, golf courses are variable environments, where conditions can change from shot to shot. A game of golf is more than likely to include uneven ground, requiring shots to be played from uphill/downhill, sidehill or more likely a combination slope. Understanding how intermediate and expert golfers respond to such task constraints and the mechanisms of producing the expected performance outcomes merits investigation. The project will use a combination of kinematic (motion capture) and kinetic (force plates) data collection in conjunction with a Motek CAREN (Computer Assisted Rehabilitation ENvironment) system to create the environmental changes (slopes). The effect of expertise, and slope (both magnitude and combination) on such measures as swing path, swing plane and alignment can then be measured. Determining how the kinematics (technique) serve to create the shot outcomes would then be the next step. Depending on the specific project chosen, there may also be scope for a motor learning intervention study.
Required skills, experience, and/or education:	Applicants should have at least a 2:1 Honours degree (or equivalent) in sport science (with a large component of biomechanics), physics, engineering, mathematics or a related subject. A relevant Master's degree and/or experience in one or more of the following will be an advantage: 3D motion analysis, applied sport science support.
Link to School research theme:	Sport Performance